AD-A144 849 SEAFLOOR GEOSCIENCES DIVISION: MISSIONS TECHNICAL SPECIALTIES ACCOMPLISHM..(U) NAVAL OCEAN RESEARCH AND DEVELOPMENT ACTIVITY NSTL STATION MS.. 1/1

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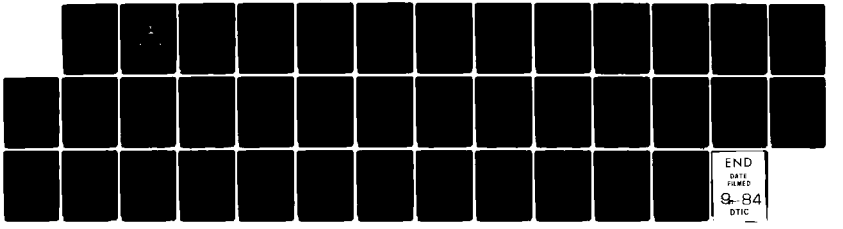

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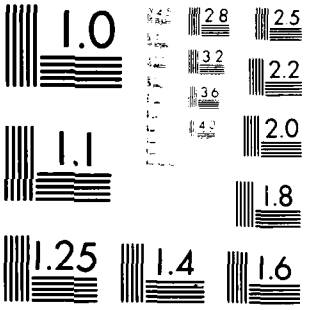
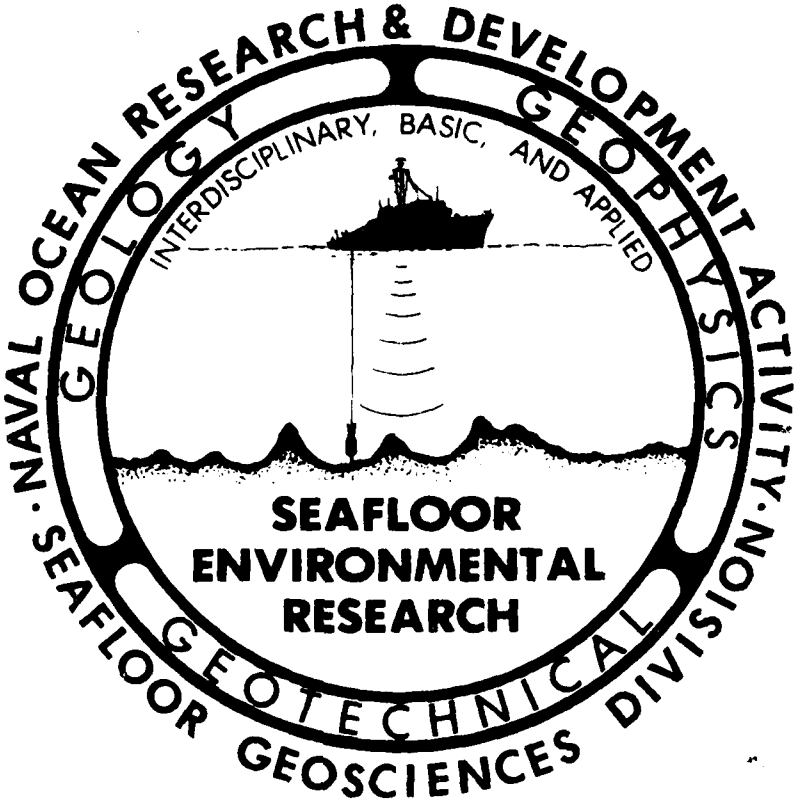


NORDA Technical Note 281

Naval Ocean Research and
Development Activity
NSTL, Mississippi 39529

Seafloor Geosciences Division: Missions, Technical Specialties, Accomplishments, and Activities, Calendar Year 1983



Compiled by
F. L. Nastav and R. H. Bennett
Ocean Science Directorate
Seafloor Geosciences Division

Approved for Public Release
Distribution Unlimited

July 1984

ABSTRACT

The Seafloor Geosciences Division (Code 360), is one of five divisions in the Ocean Science Directorate (Code 300) of the Naval Ocean Research and Development Activity (NORDA). Code 360 has undergone significant change during the early part of 1983. The addition of the Marine Geotechnical Branch (Code 363) provided a new dimension to the Division's existing capabilities that include the Marine Geology Branch (Code 361) and the Geophysics Branch (Code 362). During the year, new personnel joined the Division, adding technical supervisors, scientists, technicians, and clerical support to the research team. In order to more realistically reflect the mission of NORDA's Code 360, in April 1983, the name was officially changed from the Sea Floor Division to the Seafloor Geosciences Division.

The Seafloor Geosciences Division now provides the Navy with expanded and advanced capabilities to conduct comprehensive geological, geophysical, and geotechnical investigations of the sea floor and sub-sea floor. Basic and applied research studies contribute to the fundamental knowledge of the oceanic crust and overlying sediments and the effective utilization of the sea floor. Interdisciplinary seafloor science and engineering investigations are ongoing in support of Navy problems, systems design, construction, and operations. Studies provide quantitative and qualitative description and understanding of the seafloor geological materials and environmental parameters directed toward advancing the state-of-the-art.

The major activities and capabilities of the Branches are briefly outlined in Table 1. A statistics Table II summarized the Division's accomplishments, activities, and productivity for calender year 1983. Cooperative studies with other NORDA Divisions, industry, academia, and other government agencies are an integral part of the Division's activities.

This informal report is a summary of the Seafloor Geosciences Division's research accomplishments and professional activities for calendar year 1983. The purpose is to provide NORDA Management and NORDA Offices (Codes) with a timely document on the Division's productivity, accomplishments and capabilities. The report also is intended to provide a means of information exchange to system commands, oceanography commands and other Navy activities requiring seafloor environmental data. In addition, the report is designed to increase communication channels with colleagues interested in Division activities. Most publications and reports cited are available from the authors. Communications are invited and should be directed to Division staff members and authors.

MISSIONS
TECHNICAL SPECIALTIES
ACCOMPLISHMENTS & ACTIVITIES

Calendar Year 1983

SEAFLOOR GEOSCIENCES DIVISION
CODE 360
Dr. Richard H. Bennett, Head

Mr. Donald J. Walter
Technical Staff Assistant

-BRANCHES-

MARINE GEOLOGY (CODE 361)
Dr. Troy L. Holcombe, Head

MARINE GEOPHYSICS (CODE 362)
Dr. Joseph F. Gettrust, Head

MARINE GEOTECHNICAL (CODE 363)
Dr. Philip J. Valent, Head

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SEAFLOOR GEOSCIENCES DIVISION

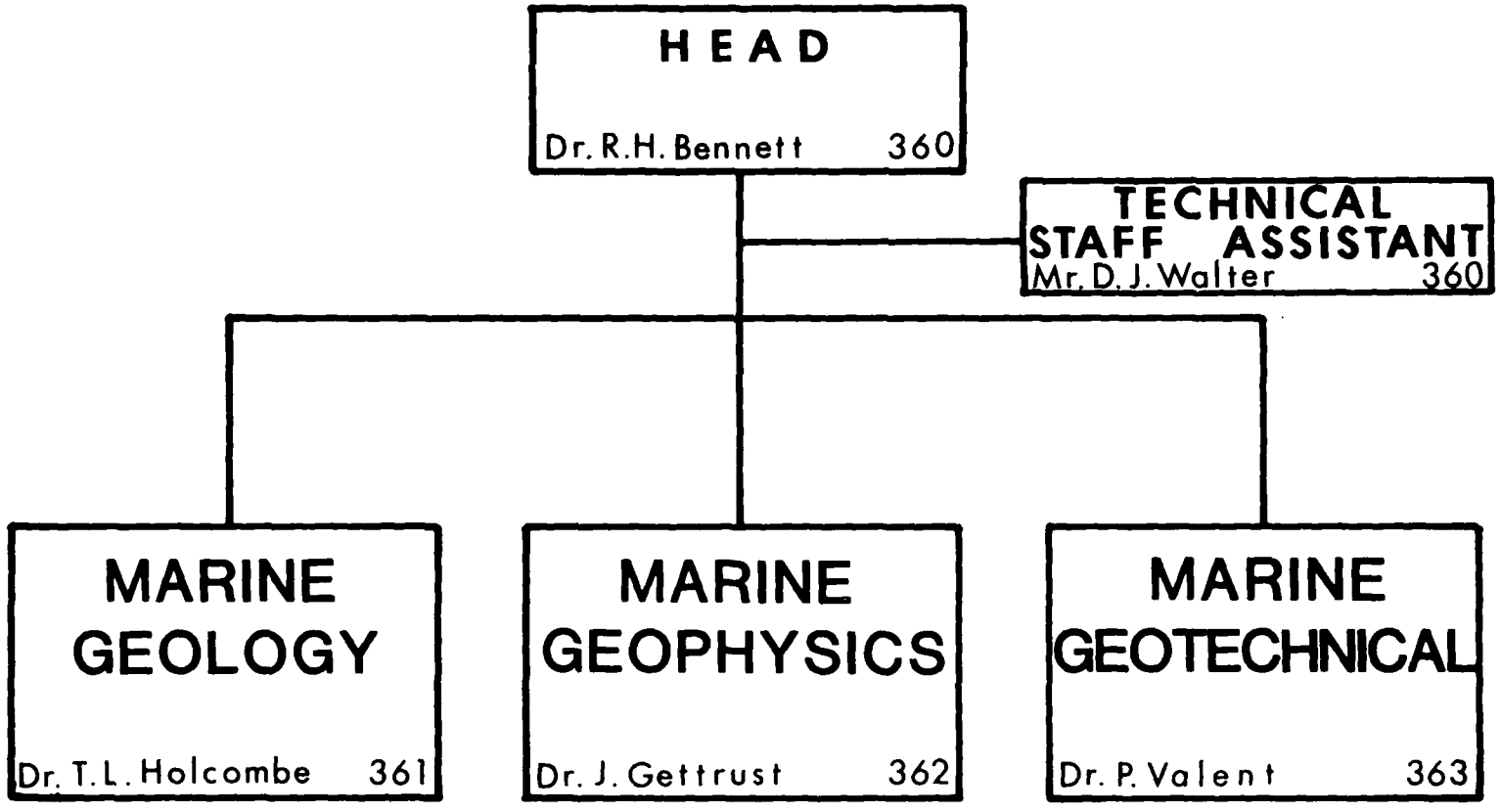

TABLE I

NORDA CODE 360 ASSETS/RESEARCH SUPPORT FACILITIES

- COMPUTER FACILITY
- SEDIMENTOLOGY LABORATORY
  - X-RAY DIFFRACTION
  - RADIOGRAPHY
- SEDIMENT PHYSIC LABORATORY
- GEOTECHNICAL (SOIL MECHANICS) LABORATORY
  - TRIAXIAL APPARATUS
  - CONSOLIDOMETERS
  - SOIL CLASSIFICATION
  - SHEAR STRENGTH (VANE SHEAR/DIRECT SHEAR)
  - MASS PHYSICAL PROPERTIES TEST EQUIPMENT
  - CORE EQUIPMENT
- IN SITU GEOTECHNICAL PROBES
- PENETROMETER TEST FACILITY
- HIGH PRESSURE TEST FACILITY
- GEOPHYSICAL SYSTEMS
  - HONEYWELL-ELAC SEDIMENT CLASSIFIER
  - 3.5 kHz PROFILER
  - SIDE-SCAN SONAR SYSTEM (KLEIN)
  - SINGLE CHANNEL SEISMIC PROFILER (AIRGUNS)
  - OCEAN BOTTOM SEISMOGRAPHS (OBS)
  - MAGNETOMETERS
- CALIBRATION TEST FACILITY
  - TEMPERATURE
  - PRESSURE
- ELECTRON MICROSCOPY LABORATORY
- INSTRUMENTATION DEVELOPMENT AND FABRICATION FACILITY (MECHANICAL/ELECTRONIC)
- SEDIMENT CORE/SAMPLE REPOSITORY
- LARGE GEOLOGICAL/GEOTECHNICAL DATA BASES
- UNDERWATER PHOTOGRAPHY
  - STATE-OF-THE-ART, U/W 70mm CAMERA SYSTEM
  - OPERATIONAL RANGE OCEANIC DEPTHS 6,000 METERS
  - PHOTOGRAPHIC CAPABILITIES IN MONO AND STEREO

TABLE II

1983

STATISTICS

CODE:	360	361	362	363	TOTALS
Papers/Books Published	8	6	3	6	23
Papers/Books in Press	6	4	-	2	12
Papers Submitted	3	1	3	-	7
Abstracts	2	6	1	2	11
Current Projects/Papers in Preparation	9	14	14	9	46
Presentations/Seminars	6	4	4	1	15
Developments (Inst./ Equip. software)	-	-	7	4	11
Committes/Advisory Activities/Editorial Boards	12	-	2	3	17

SEAFLOOR GEOSCIENCES DIVISION
CODE 360

MISSION/BASIC RESPONSIBILITIES

The Seafloor Geosciences Division is responsible for managing and conducting geological, geophysical, and geotechnical investigations which advance the state-of-the-art. It provides the Navy with the understanding, description, modeling and quantitative prediction of marine geological environments in terms which relate to Navy systems design, construction and operations.

Telephone Number for Seafloor Geosciences Division:
(601) 688-4657, AUTOVON 485, FTS 494

Dr. Richard H. Bennett, Head, Supervisory Oceanographer (Interdisciplinary)

Technical Specialties:

- Marine Geotechnique
- Clay Microstructure
- Seafloor Stability
- In Situ Geotechnical Probe Development
- Shallow Water and Deep-Ocean Piezometer Systems

Mr. Donald J. Walter, Technical Staff Assistant to Division Head

Technical Specialties:

- Resource Allocation
- Budgetary Planning and Projections
- Project and Program Planning and Analysis
- Logistical Planning
- Technical Administration
- Assist in Division Policy Development
- Manpower Utilization

Ms. Kathy McIntosh: Division Secretary

Technical Specialties:

- Division Correspondence
- Word Processing
- Maintains Record Control
- Travel arrangements
- Arranges meetings and conferences
- Division Timekeeper
- Provides guidance to Division clerical personnel

Ms. Sandra Eades, Administrative Assistant

Technical Specialties:

- Financial Records
- Budgets
- Personnel Records
- Purchasing (Division Level)
- AIMAT Coordinator
- Division Logistics

Ms. Cynthia Sellinger, Geologist

Technical Specialties:

- Mapping and Charting
- Marine Geology
- Sedimentology, Analytical Techniques

Ms. Lee Nastav, Physical Science Technician

Technical Specialties:

- Processing and reduction of raw data
- Library research for marine geological, geophysical and geotechnical applications
- Design, display, compilation of maps, graphs, illustrations for storage and publication of data
- Technical editing, proofing, fabricating mock-ups for manuscript publications
- Record maintenance

PAPERS/BOOKS PUBLISHED

Bennett, R.H., F.A. Bowles, D.N. Lambert, F.L. Nastav, G.F. Merrill, G. Almagor and W.J. Burton, 1983. Geotechnical and Geological Factors Affecting Offshore Engineering and Seabed Utilization on a Carbonate Margin: St. Croix, V.I., p. 311-321. Proc. of the Second Int'l Offshore Mechanics and Arctic Engineering Symposium. American Soc. of Mechanical Eng. p. 311-321.

Bennett, R.H., J. T. Burns, J. Lipkin and C.M. Percival, 1983. Piezometer Probe Technology for Geotechnical Investigations in Coastal and Deep-Ocean Environments. Secretariat, Range Commanders Council, White Sands Missile Range, NM, Proceedings of the Twelfth Transducer Workshop, June 7-9, Melbourne, FL, eds. L. Bates and K.D. Cox, p. 377-404.

Bennett, Richard H., 1983. Seafloor Geosciences Division: Missions, Technical Specialties, Accomplishments, and Activities, 1982 to Early 1983. NORDA Technical Note 214, 31 p.

Bennett, R.H., D.N. Lambert, M.H. Hulbert, J.T. Burns and W.B. Sawyer, 1983. Electrical Resistivity/Conductivity in Seabed Sediments. p. 333-375, In: R. Geyer, ed., CRC Handbook of Marine Science; "Geophysical Exploration at Sea", 445 p.

Bennett, R.H. and T.A. Nelsen, 1983. Seafloor Characteristics and Dynamics Affecting Geotechnical Properties at Shelfbreaks. p. 333-355, SEPM Special Pub. No. 33, The Shelfbreak: Critical Interface on Continental Margins, eds. D.T. Stanley and G.T. Moore, 467 p.

Bennett, Richard H., James R. Hooper and Robert Bea, 1983. Geological and Geotechnical Research on Seafloor Stability of Continental Margins, p. 115-116, Forward to special issue of Geo-Marine Letters, vol.2 (copyright Pub. 1982).

Almagor, Gideon, R.H. Bennett, B.A. McGregor, and L.E. Shephard, 1983. Stability Studies of Surficial Sediments in the Wilmington-Lindenkohl Canyons area, Eastern U.S. Margin, Geo-Marine Letters, vol. 2, p. 129-134 (copyright Pub. 1982).

Hulbert, M.H., R.H. Bennett and D.N. Lambert, 1983. Seabed Geotechnical Parameters from Electrical Conductivity Measurements. Geo-Marine Letters, vol. 2, p. 219-222 (copyright pub. 1982).

PAPERS/BOOKS IN PRESS

Bennett, Richard H. et al. Geotechnical properties of Walvis Ridge, Deep Sea Drilling Project Leg 75, Site 532 A. Initial Reports DSDP, IPOD Leg 75.

Bennett, Richard H., Frances L. Nastav and William R. Bryant. Strength measurements on DSDP geological materials. Initial Reports of the Deep-Sea Drilling Project, v. 44(B), Tech. Manual, p. 333-375.

Bennett, Richard H., Linda Lehman, Matthew H. Hulbert, George R. Harvey, Sam A. Bush, Evan B. Forde, Patty Crews, and William B. Sawyer. Organic Carbon and Submarine Sediment Geotechnical Properties Interrelationships. Marine Geotechnology.

Almagor, Gideon, Richard H. Bennett, Douglas N. Lambert, Evan B. Forde, and Les S. Shepard. Analysis of Slope Stability, Wilmington to Lindenkohl Canyons, U.S. Mid-Atlantic Margin. IUTAM '83 Symposium, Newcastle Upon Tyne, England. Graham and Trotnam Ltd.

Bennett, R.H., F.A. Bowles, D.N. Lambert, F.L. Nastav, G.F. Merrill, G. Almagor and W.J. Burton. Geotechnical and Geological Factors Affecting Offshore Engineering and Seabed Utilization on a Carbonate Margin:St. Croix, V.I., J. Energy Resources Technology, ASME.

Bennett, Richard H., John T. Burns, Douglas N. Lambert. Development of Deep-Ocean Piezometer System for the Subseabed Disposal Program (Status Report for FY82); *in*: 1982 Subseabed Disposal Program Annual Report: Geotechnical Laboratory and Modeling Studies, October 1981 to September 1982, Sandia National Laboratories.

PAPERS SUBMITTED

Bennett, R.H., Huon Li, P.J. Valent, J. Lipkin, and M.I. Esrig. *In Situ Undrained* Shear Strengths and Permeabilities Derived from Piezometer Measurements, ASTM Symposium on Laboratory and In Situ Testing of Marine Soils.

Chiou, W.A., W.R. Bryant, and R.H. Bennett,. Clay fabrics of pressurized core sediments, In: Whalley, W.B., and Drinsley, D.H., eds., Scanning Electron Microscopy in Geology, A symposium: GeoAbstracts, Norwich, England.

Bennett, Richard H. and Matthew H. Hulbert. Clay Microstructure - an Historical Perspective of Clay Fabric and Physico - Chemistry of Fine-Grained Mineral Sediments. Book: IHRDC Press.

ABSTRACTS

Bennett, R.H., F.A. Bowles, W.J. Burton, D.N. Lambert, G.F. Merrill and F.L. Nastav, 1983. Geotechnical and geological factors affecting offshore engineering and seabed utilization on a carbonate margin: St. Croix V.I., The American Soc. of Mechanical Engineers 2nd Arctic and Offshore Mechanics Symposium, Houston, TX, Feb.

Bennett, R.H., J.T. Burns, J. Lipkin and C.M. Percival, 1983. Piezometer Probe Technology for Geotechnical Investigations in Coastal and Deep-Ocean Environments. 12th Transducer Workshop, Melbourne, FL, June.

CURRENT PROJECTS/PAPERS IN PREPARATION

Richard H. Bennett

TECHNICAL

McTigue, D.F., J. Lipkin, and R.H. Bennett. Isothermal Mechanical Response of Sediment in the ISHTE Simulation Experiment. Technical Report SAND 83-1847, SANDIA National Laboratories.

Nelsen, T.A., and R.H. Bennett. Soft Sediment Deformation Structures on the Slope Northeast of Wilmington Canyon: A Petrographic Study of their origin.

Bennett, R.H., E.B. Forde, B.A. McGregor, G.F. Merrill. Slope Maps of a Corridor Across the U.S. Atlantic Continental Margin: Morphology, Sedimentology and Geotechnical Properties (six maps 1:20,000 scale with text).

Bennett, R.H., P.J. Valent, H. Li, J. Burns and D.N. Lambert. Preparing 1983 Annual Report for In Situ Heat Transfer Experiment, Seabed Waste Disposal Program. Preparing for ISHTE platform wet test. Pacific Ocean north of Hawaii.

Bennett, R.H., P.J. Valent, D.N. Lambert, and C.R. Holland. Preparing Program Development Plan, In Situ Seafloor Geotechnical Test Platform.

ADMINISTRATIVE

- Development of Division presentation materials: capabilities, functions, assets, missions, etc.
- Development and integration of Division scientific and technical capabilities in Navy's 6.2 & 6.3 programs - Coordination with program managers
- Promoting visibility of Code 360, Seafloor Geosciences Division's capabilities throughout the Navy system.
- Planning and management of Code 360's move to the new building

F.L. Nastav

Compilation of data bases, "Seafloor and Subseafloor Sediment Mass Physical Properties and Soil Types: Lateral and Vertical Variability in Strategic and Tactical Oceanic Environments for Rational Decision Making". F.L. Nastav and R.H. Bennett.

PRESENTATIONS/SEMINARS

R.H. Bennett

- "Geotechnical and Geological Factors Affecting offshore Engineering and Seabed Utilization on a Carbonate Margin, St. Croix, V.I.". Presented at the Second International Offshore Mechanics and Arctic Engineering Symposium, Jan.

- "Capabilities of the Seafloor Geosciences Division, Naval Ocean Research and Development Activity (NORDA)". Informal seminar NAVFAC, Washington, DC, Jan.

- "Piezometer Probe Technology for Coastal and Deep-Ocean Environments". Paper presented at the 12th Transducer and Vehicular Instrumentation Workshop in Melbourne, FL, June.

- Informal briefing at NAVMAT, Washington, DC, on NORDA Code 360 capabilities and efforts, particularly in shallow water, July.

- "State of the Seafloor Geosciences Division" presented at the NORDA Senior Management Retreat, USM Conf. and Workshops, Oct.

- NORDA's Activities in the In Situ Heat Transfer Experiment (ISHTE), presentation to the 14th Annual meeting of the Subseabed Disposal Program, Denver, CO, Oct.

COMMITTEES/ADVISORY ACTIVITIES/EDITORIAL BOARDS

R. H. Bennett

NRC advisor and sponsor for post-doctoral research associateships in marine geotechnique, geology, and geophysics (NORDA)

Attended NORDA's senior management meetings, Diamondhead, MS.

Member, DSDP/IPOD Sedimentary Petrology and Physical Properties Panel (SP-4) and Working Group on Research Activities

Member, NORDA's Technical Management Council (TMC)

Member, NORDA committee on best paper awards

NORDA Project Officer for the Combined Federal Campaign

Adjunct Professor, Texas A&M University, Dept. of Oceanography

Adjunct Associate Professor, Ocean Engineering Division, University of Miami

Member, Editorial Board, Marine Geotechnology, an international journal of seafloor science and engineering

Member, Editorial Board, Applied Ocean Research, CML Publications

Member, ISHTE Project Planning Group; attended meeting and participated in 15th meeting at APL, University of Seattle

Member, NORDA's Performance Rating and Incentive Awards Board

MAJOR ACCOMPLISHMENTS

R. H. Bennett

Reorganized Code 360; Established a strong managerial and technical staff. Effected selected realignments and established and filled new critical positions. Revitalized 360 mission and developed branch mission statements

Established the Marine Geotechnical Branch, Code 363, April 1983

Received NORDA Merit Performance Award for participation in NORDA's EEO/Affirmative Action Activities

Special Editor: Geo-Marine Letters. Issue: Seafloor Stability of Continental Margins, Vol 2, No. 3-4, 251 p.

Cynthia Sellinger

Analyzed select core samples from the Venezuela Basin which led to interpretation of the climatic patterns during glacial and interglacial periods. The samples were analyzed using various geochemical lab techniques, X-ray techniques

Prepared bathymetric and basement computerized data of a deep sea drilling project (DSDP) site for an upcoming data report produced by the Geophysics Branch. This included inputing, extracting and manipulating existing data for plotting. Assisted in contouring several charts of the DSDP site

Lee Nastav

Compilation, coordination and technical/scientific editing efforts on publication of NORDA Tech Note 214, and several manuscripts submitted for publication during CY83

Production and compilation of numerous presentation packages:narratives, slides, visual aids etc.

Assisted in coordinating NORDA's FY84 Combined Federal Campaign for the United Way, Oct-Nov 1983

Long range data research project begun: Effects of Shallow-Water Geologic Processes on High Frequency Acoustic Scattering

Prepared the Division Presentation Portfolio-consisting of slides and viewgraphs

Coordinated the publication of Seafloor Stability of Continental Margins, a special issue of Geo-Marine Letters resulting from a SEPM-NORDA research conference

MARINE GEOLOGY BRANCH
CODE 361

MISSION/BASIC RESPONSIBILITIES

Marine Geology investigations of coastal and deep-ocean environments are directed toward the understanding of the sedimentology, structural geology, acoustic stratigraphy, processes and environmental parameters as they relate to Navy activities. Advanced field and laboratory techniques are utilized to improve the quality and resolution of geological parameters which advance the state-of-the-art. Consultation and service activities are in direct support of Navy requirements. Regional and site specific studies are designed to provide improved description of the geological environments and to advance predictive modeling capabilities.

Telephone Number for Marine Geology Branch:
(601) 688-4906, AUTOVON 485, FTS 494

Dr. Troy Holcombe, Branch Head (Supervisory Geologist), Science and Technical Manager

Technical Specialties:

- Broad experience in Marine Geology, including geomorphology, stratigraphy, and structural geology/tectonics
- Caribbean regional geology
- Geological interpretation of geophysical data, principally seismic reflection data

Dr. Frederick A. Bowles, Oceanographer

Technical Specialties:

- Sedimentation
- Stratigraphy
- Mineralogy

These disciplines are employed to extend our knowledge of the seafloor environment, specifically relating to such things as bottom current patterns, climatic influences on sedimentation, delineation of depositional history, sediment dispersal, etc.

Dr. Peter Fleischer, Geologist

Technical Specialties:

- Marine Geology
- Sedimentation
- Sedimentary processes and geology of continental margins
- Geologic processes of coastal and estuarine environments
- Deep sea bedforms and sediment transport
- Seafloor characterization techniques
- Clay mineralogy

Mr. Julius Egloff, Geologist

Technical Specialties:

- Seafloor Geology
- Geomorphology
- Tectonics of continental margins and mid-ocean rises
- Survey technologies
- Interpretation of seismic reflection, side-scan sonar, and bathymetric data
- Geographically specializing in the North Atlantic Ocean, Greenland-Norwegian Seas, Labrador Sea, Gulf of Mexico, Caribbean and Mediterranean and North Seas, etc.

Ms. Anna M. Einwich, Oceanographer

Technical Specialties:

- Marine Geology
- Geomorphology
- Ocean basin history (and related studies) through interpretation of seismic and magnetic data, bottom photographs and cores

Mr. William B. Sawyer, Geologist

Technical Specialties:

- Marine Geology
- Marine Geotechnique
- Sedimentology
- Seafloor classification using side-scan sonar and 3.5 kHz subbottom profiling
- Classical sedimentological and geotechnical laboratory techniques of marine sediments
- Marine geological field techniques and methods including bottom sampling and photography, seismic reflection profiling, side-scan sonar and field sample processing

Mr. Walter H. Jahn, Physical Science Technician

Technical Specialties:

- Deep Ocean Photography
- Marine Geology
- Coring Program
- Constructing, fabricating, designing various oceanographic instruments and packages to be used at sea

Dr. Raymond P. Freeman-Lynde, NRC-NORDA Cooperative Associate

Technical Specialties:

- Marine Geology
- Sedimentology
- Carbonate Sedimentology
- Continental Margins: Marine geology of continental margins with emphasis on steep carbonate escarpments at passive continental margins

PAPERS/BOOKS PUBLISHED

T.L. Holcombe

Holcombe, T.L., and G.F. Sharman, 1983. Post-Miocene Cayman Trough evolution:a speculative model, Geology, v. 11, p. 714-717.

F.A. Bowles

Bowles, F.A. and W.H. Jahn, 1983. Geological/geophysical observations and inferred bottom-current flow:South Flank Iceland-Faeroe Ridge. Marine Geology, v. 59, p. 159-185.

P. Fleischer

Fleischer, P., W. Howard and S. Tooma, 1983. Mine Burial Tests in the Shallow Water Approaches to Galveston, TX(U). NORDA Technical Note 213, 38 p.

Fleischer, P., W. Howard and S. Tooma, 1983. Mine burial tests in the shallow water approaches to San Diego, CA (U). NORDA Technical Note 213, 50 p.

J. Egloff

Egloff, Julius, and G.L. Johnson, 1983. Growth fault on insular slope/rise of western Iceland; comparison with SE Greenland canyons and slumps. Geo-Marine Letters, Vol. 2, p. 143-148 (Copyright pub. 1982).

R.P. Freeman-Lynde

Freeman-Lynde, R.P., 1983. Cretaceous and Tertiary samples dredged from the Florida Escarpment, eastern Gulf of Mexico: Trans. Gulf Coast Assoc. Geol. Soc., v. 33, p. 91-99.

PAPERS/BOOKS IN PRESS

T.L. Holcombe

Forsthoff, G.M., and T.L. Holcombe. Quaternary turbidites of the Muertos Trough, norhteastern Caribbean Sea-composition, source, and dispersal patterns. Transactions of the 10th Caribbean Geological Conference.

Case, J.E., T.L. Holcombe and R.G. Martin. Map of geologic provinces in the Caribbean Region, Geological Society of America memoir.

P. Fleischer

Fleischer, P. and W. Howard. Mine burial severity, a threat assessment. NORDA Report #62.

Gorsline, D.S., H.A. Karl, D.E. Drake, R.L. Kolpack, S.E. Thornton, and P. Fleischer. California Borderland suspended sediment studies. IAS symposium on fine-grained sediment transport.

PAPERS SUBMITTED

J. Egloff

Peter R. Vogt, J. Egloff, G.L. Johnson, and R.K. Perry. The Faial-Flores Time-Transgressive Ridges:Evidence for Southward Asthenosphere Flow from the Azores Mantle Plume? Journal of Geophysical Research.

ABSTRACTS

F.A. Bowles

Bowles, F.A. and P. Fleischer, 1983, Orinoco/Amazon River sediment input to the eastern Caribbean Basin, EOS, v. 64, No. 52, p. 1076.

Bowles, F.A., R.H. Bennett and D.K. Hubbard, 1983, Geomorphology and Sediments of the Virgin Island Trough and Slope off St. Croix Island. 10th Caribbean Geological Conference.

J. Egloff

Vogt, Peter R., J. Egloff, Further Investigations of the Time-Transgressive "A" and "E" Escarpments on the Reykjanes Ridge, and implications for variable discharge from the Iceland Mantle Plume. In: Inter-Disciplinary Symposium 03, "Crustal Accretion in and around Iceland" of the 13th IUGG General Assembly., Aug, 1983, Hamburg.

W. Sawyer

Buffler, Richard T., Stanley Locker, Clint D. Cagle, William B. Sawyer, John C. Crowe and Ronald L. Phair, University of Texas Institute of Geophysics, Austin, TX, AAPG Annual Convention, 1983. Poster Session & Abstract. Results of Ocean Margin Drilling Program Synthesis of Gulf of Mexico Basin.

R.P. Freeman-Lynde

Freeman-Lynde, R.P., 1983. Cretaceous and Tertiary Samples dredged from Florida Escarpment, eastern Gulf of Mexico: AAPG Bull., v. 67, No. 9, p. 1464.

Freeman-Lynde, R.P., 1983. Erosion of Bahama and Florida Escarpments: GSA Abstracts with Programs, v. 15, No. 6, p. 576.

CURRENT PROJECTS/PAPERS IN PREPARATION

T.L. Holcombe

Coordinator for marine geology section of the Decade of North American Geology Caribbean Volume. Manuscripts currently in preparation. Co-authors are Graham Westbrook, John Ladd, and Roland VonHuene.

Preparing a map of surficial geology of the subsea portion of the Caribbean Region, to be incorporated into the four-sheet Decade of North American Geology Geological Map of North America.

Soviet Research in Marine Geology and Geophysics, in preparation as NORDA Tech Note No. 230 (with Anna M. Einwich).

F.A. Bowles

Bowles, F.A. and P. Fleischer, Orinoco/Amazon River sediment input to the eastern Caribbean Basin.

Currently preparing manuscript on anomalous buried sediment structures on Iceland-Faeroe Ridge.

Report - geology/geophysics, Virgin Island Trough west of St. Croix.

P. FLeischer

Fleischer, P. and J.R. Feuillet. Deposition of Clay Minerals on the continental slope by the circulation complex off southeastern United States.

J. Egloff

Sommerhoff, Gerd, J. Egloff, and G.L. Johnson. Sediment Dynamics of the Southeast Greenland Continental Margin.

Geophysical Atlas of the Northern North Atlantic. German Hydrographic Institute.

A.M. Einwich

Silicean pelagic clays from the Angola Basin, Eastern South Atlantic: implications.

W.B. Sawyer

Sawyer, W.B., D.N. Lambert, and R.H. Bennett. A New Highly Accurate Single Piston Helium Pycnometer for the Rapid Determination of Average Grain Density of Powdered Materials, to be submitted to ASTM Geotechnical Testing Journal.

W.H. Jahn

Quantification of deep sea lebensspuren from photographs:A comparison among sedimentary provinces of the Venezuelan Basin, Caribbean Sea, D.K. Young (Code 334).

R.P. Freeman-Lynde

Freeman-Lynde, R.P., W.B.F. Ryan, Erosional modification of Bahama Escarpment. To be submitted to GSA Bull.

Freeman-Lynde, R.P., W.B.F. Ryan, Subsidence History of the Bahama Escarpment and the nature of the crust underlying the Bahama Platform. To be submitted to Tectonics.

PRESENTATIONS/SEMINARS

T.L. Holcombe

- *Participated in and made presentation at the first organizing workshop for the Decade of North American Geology Caribbean Volume, held in Miami, FL on Jan 20-23.*

- Participated in, and made presentation at workshop on Southern Oceans:Perspective on Marine Geology and Geophysics Research, held in Palisades, NY, on Mar 14-15.

- Presented a paper entitled Quaternary turbidites of the Muertos Trough - composition, source, and dispersal patterns, at the Tenth Caribbean Geological Conference, held in Cartagena, Colombia, on August 15-19.

P. Fleischer

- Presentation to National Science Teachers Association Convention. Subj: Marine Geology Activities at NORDA.

MAJOR ACCOMPLISHMENTS

F.A. Bowles

Provided comprehensive geologic assessment of Barents Sea and Gulf of Maine areas in support of NRL shallow-water acoustic experiments; provided maps, compilations, and advisory services

Coordinated literature search, data compilation and cruise preparations for South Atlantic geological/geophysical field expedition; served as senior scientist in the field

P. Fleischer

Conducted site selection surveys at Charleston, SC and Panama City, FL for high-frequency acoustic scattering/geological processes special focus program

Conducted geological survey for fixed/mobile high-frequency mine hunting sonar calibration test at Charleston, SC.

Completed Dauphin Island Bridge Rubble study for Mississippi-Alabama Sea Grant Consortium. Produced hang log and bottom hazards chart

J. Egloff

Set up technical system for DMA digitizing project, from receipt-inventory to computer plotting and editing of first 100 sounding collection

A.M. Einwich

Support for South Atlantic Project:

A. Completed establishment of reference file of existing literature on the South Atlantic and set up self-help system and card files for borrowing; reviewed 1379 items, selected 478 and 107 abstracts

B. Compiled preliminary and updated maps from all existing literature and late maps:

1. Surficial sediment types (from core descriptions (732 cores))
2. Isopach map of sediment thickness, (also used and credited for Matthews-Lavoie project)
3. Trace control for isopach map

C. Assembled and plotted core data for study of turbidites in the Argentine Basin

Assembled, compiled and classified various aspects of Russian research in marine geology and geophysics from translations of Russian journals, participated in discussions, offered observations (2nd author)

Prepared geological data from the eastern Caribbean for inclusion in new geologic map for GSA

Compiled seismic refraction track locations and columnar velocities in the Cayman Trough area

Assisted in preparing geologic background for Barents Sea Project; compiled isopach map of holocene sediment thickness in the Gulf of Maine from raw data

W.B. Sawyer

Participated in high-frequency acoustic scattering program experiments in Charleston, SC and 2 field trips to Panama City, FL for site selection of experiment to be conducted in Fall 84. Participation includes construction of site survey side scan mosaics and bathymetric maps

Completed side scan sonar mosaic of Dauphin Island Bridge Rubble Study.

Completed side scan sonar mosaic of Mission Beach, San Diego, CA.

MARINE GEOPHYSICS BRANCH
CODE 362

MISSION/BASIC RESPONSIBILITIES

Emphasis is on the development of research programs in seismology (geoacoustics), geomagnetism/plate tectonics, and geoelectric fields and methods. Field investigations and theoretical modeling are integral aspects of the geophysical programs. These include quantitative and statistical analysis of a broad spectrum of geophysical data in support of Navy requirements. Cooperative interdisciplinary investigations are directed toward advancing the state-of-the-art in seismology, geomagnetism, and geoelectric techniques.

Telephone Number for Geophysics Branch:
(601) 688-4906, AUTOVON 485, FTS 494

Dr. Joseph F. Gettrust, Branch Head (Supervisory Research Geophysicist), Science and Technical Manager

Technical Specialties:

- Solid Earth Geophysics, specializing in seismology
- Marine Geology, especially structure of the crust and upper mantle and its seismological expression
- Application of mathematical physics and computers to geophysical and geological problems
- Digital computers and geophysical instrumentation and their experimental applications
- Management of large-scale geophysical field and laboratory programs

Ms. Linda H. Conner, Secretary

Technical Specialties:

- Functions as Secretary for Marine Geology Branch, Geophysics Branch, and Marine Geotechnical Branch
- Types correspondence, reports, etc., for three Branches
- Coordinates telephone calls and visitors for Branch personnel
- Maintains and controls office files and records
- Word processing

Dr. G. Lafayette Maynard, Senior Research Geophysicist

Technical Specialties:

- Seismology and seismic instrumentation; especially exploration seismology at sea
- Observatory (earthquake) seismology
- General marine geophysics and geological oceanography

Dr. David Handschumacher, Senior Research Geophysicist

Technical Specialties:

- Plate Tectonics (seafloor spreading)
- Geomagnetism (plate tectonics, geomagnetic reversals, oceanic crust, seamounts)
- Aeromagnetic Survey Operations

Ms. Muriel S. Grim, Geophysicist

Technical Specialties:

- Geology and geophysical properties of the U.S. Atlantic Continental Margin
- Exploration seismology-processing and analysis of seismic data
- Geology: tectonic and sedimentary processes on the U.S. Atlantic continental margin

Mr. William H. Everard, Electronics Engineer

Technical Specialties:

- Design and development of electronic circuits and systems
- General meteorological, oceanographic, and geophysical instrumentation
- Data acquisition systems

Mr. Eugene Morgenthaler, Geologist

Technical Specialties:

- Scientific support of Geomagnetism and Plate Tectonics Program
- Field Investigations: Collection, processing, and compilation of geomagnetic data
- Study of crustal structure, age and evolution
- Analysis and interpretation of airborne/marine magnetic data

Mr. Steve Madosik III, Physical Science Technician

Technical Specialties:

- Computer programming
- Data base management
- Computer data processing
- Management of research computer facility

PAPERS/BOOKS PUBLISHED

J.F. Gettrust

Hsu, V., J.F. Gettrust, C.E. Helsley, and E. Berg, 1983. Local Seismicity Preceding the March 14, 1979, Petatlan, Mexico Earthquake, Journ. Geophys. Res., 88, p. 4247-4262.

M.S. Grim

Behrendt, John C., and Muriel S. Grim, Structural Elements of the U.S. Atlantic Margin Delineated by Second Vertical Derivative of Aeromagnetic Data, USGS Geophysical Investigations map GP-956.

Behrendt, J.C. and M.S. Grim, Magnetic total intensity Anomalies, Second Vertical Derivative, in: Ocean Margin Drilling Program Regional Data Synthesis Series, Atlas 5: Eastern North America Continental Margin and Adjacent Floor.

PAPERS SUBMITTED

J.F. Gettrust

Cassanova, D., E. Berg, C.E. Helsley, J. F. Gettrust, Aftershock Activity of the Petatlan, March 14, 1979 Earthquake: The first 54 hours. Submitted to Bul. Seis. Soc. Am.

D. Handschumacher

Northwest Pacific Magnetic Anomaly Chart, GSA Map and Chart Series 47, with D.R. Bracey.

D. Handschumacher

Active Ridge Crest Mapping on the Juan Fernandez Micro-Plate, Nature, with J. Francheteau, H. Craig.

ABSTRACTS

D. Handschumacher

Japanese (M) Lineations:Systematic Anomaly Amplitude Increase Away From Fracture Zones, EOS, Vol. 64, No. 4S, p. 688 with P.R. Vogt and D.R. Bracey.

CURRENT PROJECTS/PAPERS IN PREPARATION

J.F. Gettrust

Schreiner, A. and J. F. Gettrust; Crustal Structure in the Orozco Fracture Zone, to be submitted to Journal of Geophysical Research

Mortera, C. and J.F. Gettrust; Crustal Structure of the Hess Rise, to be submitted to Journ. Geophys. Res.

Gettrust, J.F., Extension of Pn Propagation Mechanism to 20^{o}, to be submitted to Bul. Seis. Soc. Am.

G.L. Maynard

Crustal Structure of Fiji Plateau, with L. Kronke of Hawaii Institute of Geophysics

D. Handschumacher

Field Tests of SEASAT Bathymetric Detections, to be submitted to Marine Geophysical Researches with B. Keating et al.

Japanese (M) Magnetic Lineations:Systematic Along strike Amplitude Variation, to be submitted to Geology, with P.R. Vogt

Philippine Sea Magnetic Anomaly Chart, to be submitted to GSA Map and Chart Series with D.R. Bracey and J.R. Andrews

Aeromagnetic Detection of 3 large Uncharted Seamounts in the western Pacific, to be submitted to Geology or EOS, with E. Morgenthaler and W. Sager

Plio-Pleistocene Tectonics and Evolution of the Pacific-Antarctic--Nasca Triple Junction

Late Cretaceous to Present Evolution of the South Atlantic Ocean Basin:Geocorridor Results

Jurassic Extension of the Geomagnetic Reversal Time Scale

Tectonic Setting of the Marshall Islands, to be submitted to JGR, with J.F. Campbell and L. Kroenke

M. Grim

Grim, M. & J.F. Gettrust et al; Site Survey Report form Underway Geophysics for Hole 581 (A, B, C). To be submitted to DSDP Vol. for leg 88

E. Morgenthaler

Aeromagnetic Detection of 3 large Uncharted Seamounts in the Western Pacific, to be submitted to Geology or EOS, with D. Handschumacher and W. Sager

PRESENTATIONS/SEMINARS

J.F. Gettrust

- Code 360 Seminar: Variability in Young Oceanic Crust
- University of New Orleans: Marine Seismology

D. Handschumacher

- Jurassic Extension of the Geomagnetic Reversal Time Scale, NORDA Seminar, NSTL, July 27

- Japanese (M) Lineations: Systematic Anomaly Amplitude Increase Away from Fracture Zones, AGU Fall '83 meeting, San Francisco, CA.

DEVELOPMENTS (INSTRUMENTATION/EQUIPMENT)

J. Gettrust

Geophysical Data Acquisition System configured and purchased, software development begun

Versatec 8222 electrostatic plotter installed as part of VAX 11/750 system

Four Ocean Bottom Seismographs (OBSs) ordered with two existing OBSs to be upgraded

D. Handschumacher

Installed and tested ARINC inertial (LTN-72) and omega (LTN-211) navigation interface units on SOUTHPAC AIRMAG OPS '84. Successfully recorded 20 second navigation fixes from the LTN-72 and LTN-211 systems during this operation

E. Morgenthaler

Installation and testing of ARINC inertial (LTN-72) and omega navigation units for AIRMAG OPS '84

Technical evaluation of ARINC navigation system for aeromagnetics group

S. Madosik

Conversion of software for Cyber to VAX and development of "user friendly" computer software for reduction and graphics output of underway geophysical data

COMMITTEES/ADVISORY ACTIVITIES

J. Gettrust

Chaired: Ad Hoc Committee on extension of Lithosphere Seismology Program to Ocean Margins [Consortium for Continental Lithosphere Seismology]

M. Grim

NORDA ADP Committee

MAJOR ACCOMPLISHMENTS

J. Gettrust

Geophysical Analysis software approximately 85% ready

VLF experiment planning (tech. administration).

G.L. Maynard

SNS Leg 4 of South Atlantic Geocorridor Project during which seismic refraction/reflection data was gathered

P.I. on VLF Special Focus Project

D. Handschumacher

Conducted SOUTHPAC '83 and SOUTHPAC '84 Aeromagnetic Operations:Collection of over 50,000 nm of new magnetic anomaly measurements in sparsely surveyed areas of the South Pacific ocean basin. Preliminary analysis of these measurements indicates that they will provide important new tectonic and age constraints for interpreting the evolution and structure of the Pacific-Antarctic-Nazca triple (ridge-ridge-ridge) junction

Used detailed magnetic data (Handschumacher and Bracey, 1981 and in press) to define systematic along-strike amplitude variation on the Japanese (M) magnetic lineations in the Northwest Pacific ocean basin (Handschumacher et al, 1983 and in prep). This newly-discovered phenomenon is tentatively interpreted to be dependent on "preconditioning" of crust during accretion-axis processes and subsequent, age-dependent processes such as crustal magnetization decay with time

Participated in South Atlantic Geocorridor project:acquired good magnetic anomaly data on the first 3 legs of the FY84 field program. Preliminary processing of these data provide new and uniquely precise criteria for deriving the Cenozoic history of the South Atlantic ocean basin

Conducted the first aeromagnetic field test of SEASAT predictions for unchartered seamounts, (Keating et al, in prep)

M. Grim

With Steve Madosik converted programs for user reducing and plotting underway geophysical data from the CYBER to the VAX. Also wrote several programs to replace some which were outdated. Reorganized programs and wrote prompting system which allows someone who is unfamiliar with the programs to use them in reducing his/her data

Processed magnetic and 3.5 kHz seismic data from site survey for DSDP Leg 88, holes 581 A, B, and C. Made bathymetric, sediment isopach, and basement maps, and magnetic profiles of the survey area

W. Everard

Implemented air-compressor van for South Atlantic and VLF projects

Began installation of LSI 11/23 micro computer based data acquisition system

E. Morgenthaler

Participated in SOUTHPAC '83 and SOUTHPAC '84 areomagnetics operations, including preliminary processing of data in the field

Served as representative of geomagnetics group on the first Leg of the South Atlantic geocorridor program. During this operation, made magnetics gear operational [required making one working system form two non-working systems]. Set up geomagnetics data acquisition procedures (to fit local geologic conditions) which were used on Legs 2 and 3. Reduced geomagnetics data in the field, did preliminary analysis of these data so as to adjust Legs 2 and 3 in a way which would optimize geomagnetics data sampling

S. Madosik

Operated and helped to manage DTAGS/Code 360 VAX Computer system. Maintained and updated system and support software

Served as NORDA Code 360 representative for testing new hardware installation. Coordinated maintenance with customer engineers

C. Sellinger

Assisted in compilation and plotting of all geophysical data collected in the MSS project area (43^{o}-45^{o}N, 159^{o}-161^{o}N) prior to DSDP Leg 88

Assisted in producing detailed contour maps of the bathymetry in the DSDP Leg 88 area

Performed all sample preparation and analyses on X-ray diffraction and CO_3 measurement equipment. These analyses form the major data for a paper to be delivered at AGU meeting in New Orleans (Jan 84).

MARINE GEOTECHNICAL BRANCH
CODE 363

MISSION/BASIC RESPONSIBILITIES

The Marine Geotechnical Branch conducts basic and applied research and technology programs to advance the state-of-the-art in Marine Geotechnique of relevance to the design and performance of Navy systems and instrumentation. Investigators identify and conduct research of major scientific and geotechnical engineering merit. As a primary marine geotechnical activity within the Navy laboratory system, the Branch provides direct support of environmental requirements of the sea floor.

Telephone Number for Marine Geotechnical Branch:
(601) 688-4906, AUTOVON 485, FTS 494

Dr. Philip J. Valent, Head, Supervisory Oceanographer, science and technical manager, Registered Civil Engineer, California and Texas

Technical Specialties:

- Determination of geotechnical parameters in the nearshore and deep ocean, including survey planning, and selection and design of survey equipment
- Measurement of geotechnical parameters in the laboratory
- Prediction of the engineering behavior of calcareous sediments
- Development and evaluation of penetrometer/probe sensor systems for in situ measurement of geotechnical parameters
- Prediction of drag, deadweight, pile, and plate anchor performance

Ms. Dianne Morris, Secretary

Technical Specialties:

- Functions as Secretary for Marine Geology Branch and Marine Geotechnical Branch
- Types correspondence, reports, etc., for two Branches
- Coordinates telephone calls and visitors for Branch personnel
- Maintains and controls office files and records
- Word processing

Mr. James E. Matthews, Geophysicist

Technical Specialties:

- Geophysics: seismic reflection interpretation, long wavelength magnetic modeling, development of regional geological/geophysical synthesis
- Geotechnical: dynamic elastic moduli measurement technique, shear wave measurements in soft solids

Mr. Douglas N. Lambert, Oceanographer

Technical Specialties:

- Marine geotechnique
- Geological and geotechnical laboratory testing and equipment operation
- Deep submergence research including in situ instrumentation design
- In situ geotechnical probe design and development
- Laboratory data acquisition systems and instrument automation
- High-pressure transducer testing and calibration
- Seafloor geotechnical analysis and slope stability

Ms. Dawn Lavoie, Geologist

Technical Specialties:

- Geoacoustic modeling; development of regional geological and geophysical syntheses
- Sedimentation (especially coastal processes)
- Carbonate petrology

Mr. Frank Carnaggio, Senior Electronics Technician

Technical Specialties:

- Design and development of transducers and systems used to measure, record, and analyze physical properties such as temperature, pressure, shear and compressional wave velocities for use in the laboratory as well as for use in remote locations and hostile environments

- Design and development of facilities such as precision thermal baths and pressure chambers used in testing and calibrating physical parameter measurement transducers and systems

Mr. John T. Burns, Electronics Technician

Technical Specialties:

- Design and development of piezometer probes used in geotechnical investigations
- Operation of NORDA's high pressure test facility
- Instrumentation design for in situ geotechnical measurements

Mr. David C. Young, Mechanical Engineering Technician

Technical Specialties:

- Machinist, performs a wide variety of machine work for fabrication of experimental prototype equipment; designs mechanical subsystems and systems for geotechnical research; modifies existing equipment to suit specific needs, researches feasibility and availability of existing equipment and materials which could be used in prototype equipment, performs upkeep and maintenance of lab and workshop equipment

Ms. Gail Romero, Physical Science Technician

Technical Specialties:

- Classical geotechnical laboratory techniques for submarine sediments
- Sediment sample preparation for transmission electron microscopy
- Marine geological and geotechnical field techniques and methods

PAPERS/BOOKS PUBLISHED

J.E. Matthews

Berkson, J.M. and J.E. Matthews, 1983. Statistical Properties of Seafloor Roughness; in Acoustics and the Sea-Bed, ed. N.G. Pace, Bath University Press, Bath, England, p. 215-223.

Matthews, J.E., 1983. Shear Wave Velocity Measurements in Marine Sediments, Geo-Marine Letters, Vol. 2, p. 215-217 (copyright pub. date, 1982)

Green, J.A. and J.E. Matthews, 1983. Global Analysis of the Shallow Geology of Large-Scale Ocean Slopes; NORDA Tech. Note 197, 181 p.

Matthews, J.E. and D.C. Young, 1983. Mechanical Details of a Modified Hamilton Frame Velocimeter; NORDA Tech. Note 227, 17 p.

D.N. Lambert

Lambert, D.N., 1983. Submersible mounted in situ geotechnical instrumentation. Geo-Marine Letters, Vol. 2, p. 209-214, (Copyright Pub. 1982).

D. Lavoie

Lavoie, D. and J.E. Matthews, 1983. Sediments on the Southeastern Flank of the Bermuda Pedestal; NORDA Tech. Note 198, 97 p.

PAPERS/BOOKS IN PRESS

P.J. Valent

Valent, P.J., T.L. Holcombe, J.F. Gettrust, and F.A Bowles, 1983. Technology Assessment: Rapid Nearshore Geotechnical Surveying, NORDA Technical Report 68, 41 p.

J.E. Matthews

Berkson, J.M. and J.E. Matthews. Statistical characterization of seafloor roughness. IEEE.

ABSTRACTS

D.N. Lambert

Lambert, D.N., P.J Valent, M.D. Richardson, and G.F. Merrill, 1983. Shear Strength Variability in Three Sedimentary Provinces of the Venezuela Basin. EOS, Vol. 64, No. 52, p. 1076-1077.

D.L. Lavoie

Lavoie, D.L. and J.E. Matthews, 1983. Sediments on the southeastern flank of the Bermuda pedestal; G.S.A. Annual Meeting.

CURRENT PROJECTS/PAPERS IN PREPARATION

D.N. Lambert

Lambert, D.N., P.J. Valent, M.D. Richardson, and G.F. Merrill. Shear Strength Variability and the Effects of Bioturbation in Three Sedimentary Provinces in the Venezuela Basin, to be submitted to Marine Geology

J.E. Matthews

Development of techniques for the measurement of shear waves in soft solids, development of standards for the calibration of shear wave transducers

Description of sediment distributions in the Venezuelan Basin

Development of geoacoustic models for sloping seafloors

D.L. Lavoie

Lavoie, D.L., and J.E. Matthews, Sediments on the Southeastern flank of the Bermuda Pedestal, to be submitted to Marine Geology

Shallow Water Geoacoustic Modeling, GI-UK Gap and the Juan de Fuca Areas

D.C. Young

Fabrication of Gas Equilibrator for Code 334

Fabrication of sediment core cutter

Fabrication of diver-operated shear and compressional wave transducer probes, final stages

PRESENTATIONS/SEMINARS

D.L. Lavoie

- Education/recruiting trip, presentation about the accomplishments of the Seafloor Geosciences Division given to Mississippi State, with A. Delgado

DEVELOPMENTS (INSTRUMENTATION/EQUIPMENT)

J.T. Burns

Developed electrical interface between NORDA piezometers and APL (Applied Physics Laboratory, University of Washington, Seattle) data acquisition system

Fabricated three deep-ocean piezometer probes

Designed and fabricated calibrator for transducers at high ambient pressures, for the In Situ Heat Transfer Experiment, sponsored by Sandia National Laboratories/DOE

D.C. Young

Designed and developed a precision shear wave transducer device for measuring sound speed through sediment cores

COMMITTEES/ADVISORY ACTIVITIES/EDITORIAL BOARDS

P.J. Valent

Member, D18.13, Subcommittee on Marine Geotechnics, American Society for Testing and Materials

Member, D18.17, Subcommittee on Rock for Erosion Control, American Society for Testing and Materials

Chairman, Subcommittee on Mooring Line Longevity, American Society of Civil Engineers

MAJOR ACCOMPLISHMENTS

P.J. Valent

Participated in preparation of Development Plan: Rapid Survey System for Mine Impact Burial (internal report), by J.E. Matthews, L. Stogner, C.R. Holland, and P.J. Valent, NORDA, Dec. 1, 1983

Completed technology assessment of rapid nearshore geotechnical surveying capabilities for the Naval Civil Engineering Laboratory

J.E. Matthews

Precision thermal bath ($\pm$.005^{o}C) on line

Conducted shallow water geoacoustic experiment with international participation at LaSpezia, Italy

D.N. Lambert

Secured the acquisition of an automated rapid sediment analyzer (ARSA) system

Developed software for the HP-85 to store and retrieve data and produce graphics presentation

Completed data analysis of St. Croix Margin project

Specified new laboratory equipment for the new NORDA building, including a Transmission Electron Microscope

D.L. Lavoie

Completed South Atlantic geoacoustic models

Participated in Shallow Water Environments field experiment in LaSpezia, Italy, with SACLANT Center, University of Madrid, and University of Bologna

F.S. Carnaggio

Completed fabrication of electronic packages for diver operated compressional wave and shear wave velocity measurement systems

Completed design and initiated procurement of thermal bath modifications to provide enhanced Delta-T performance

Designed the electronics package for a diver operated sediment conductivity probe system

D.C. Young

Designed and began fabricating in situ shear and compressional wave transducer probes for diver use

G.C. Romero

Completed geotechnical sediment classification tests of Gulf of Maine cores for Marine Geology Branch

PARTICIPATING SCIENTIST

Dr. Huon Li, Oceanographer

Participating NORDA senior scientist in several ongoing research programs

Technical Specialties:

- Fluid Mechanics
- Magnetohydrodynamics
- Sea Ice Dynamics
- Sediment Transport
- Thermodynamics

CURRENT PROJECTS/PAPERS IN PREPARATION

Impact of Probe Insertion on Measured Geotechnical Properties of Sediments

Sediment Thermal Properties

COMMITTEES/ADVISORY ACTIVITIES

Adjunct Professor, Physics and Astronomy, University of Southern Mississippi

MAJOR ACCOMPLISHMENTS

Initiated a research project entitled, Impact of Probe Insertion on the Measured Geotechnical Properties of Sediments

Conducted a critical review of underwater noise and elastic waves in marine sediments

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Geotechnics

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The Seafloor Geosciences Division provides the Navy with expanded and advanced capabilities to conduct comprehensive geological, geophysical, and geotechnical investigations of the sea floor and sub-sea floor. Basic and applied research studies contribute to the fundamental knowledge of the oceanic crust and overlying sediments and the effective utilization of the sea floor. Interdisciplinary seafloor science and engineering investigations are ongoing in support of Navy problems, systems design, construction, and operations. Studies provide

CONTINUED

quantitative and qualitative description and understanding of the seafloor geological materials and environmental parameters directed toward advancing the state of the art.

This informal report is a summary of the Seafloor Geosciences Division's research accomplishments and professional activities for calendar year 1983. The purpose is to provide NORDA Management and Codes with a timely document on the Division's productivity, accomplishments, and capabilities. The report also is intended to provide a means of information exchange to system commands, oceanography commands, and other Navy activities requiring seafloor environmental data. In addition, the report is designed to increase communication channels with colleagues interested in Division activities. Most publications and reports cited are available from the authors. Communications are invited and should be directed to Division staff members and authors.